United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

Alaska
Idaho
Oregon
Washington

5.3

EPA

May 31, 1991

Reply To
Attn Of: SO-125

David Heineck
Heller, Ehrman, White, and McAuliffe
6100 Columbia Center
701 Fifth Avenue
Seattle, Washington 98104-7098

Terry T. Uhling
Assistant General Counsel
J.R. Simplot Company
4122 Yellowstone Avenue
P.O. Box 912
Pocatello, Idaho 83204

Re: Eastern Michaud Superfund Site: Administrative Order On Consent For RI/FS

Dear Mr. Heineck and Mr. Uhling:

Enclosed is a conformed copy of the Administrative Order on Consent for RI/FS at the Eastern Michaud Superfund Site.

Sincerely,

Carolyn J. Glowe for

Cynthia L. Mackey
Assistant Regional Counsel

I HEREBY CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL THEREOF.
Carolyn J. Glover
OF ATTORNEYS FOR U.S. EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10

IN THE MATTER OF:	)	
FMC CORPORATION AND	)	
J.R. SIMPLOT COMPANY,	)	
RESPONDENTS.	)	U.S. EPA Docket No. 1090-01-06-104
EASTERN MICHAUD FLATS SITE	)	
Pocatello, Idaho	)	
Proceeding Under Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C §§9604, 9622(a), 9622(d)(3)).	)	ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/ FEASIBILITY STUDY FOR EASTERN MICHAUD FLAT SITE

ADMINISTRATIVE ORDER ON CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY
EASTERN MICHAUD FLAT SITE

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I. INTRODUCTION

1. This Administrative Order on Consent ("Order") is issued by the United States Environmental Protection Agency ("EPA") to and entered into voluntarily by the above-captioned Respondents to provide for the performance and preparation of a Remedial Investigation and Feasibility Study ("RI/FS") for the above-captioned Site; and for the reimbursement of EPA for costs incurred by EPA in connection therewith, which are not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, as amended (hereinafter "Costs").

II. JURISDICTION

2. This Order is issued under the authority vested in the President of the United States by Sections 104, 122(a) and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), as amended, 42 U.S.C. §§ 9604, 9622(a), 9622(d)(3). This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (1987); further delegated to the EPA Regional Administrators on September 13, 1987, by EPA Delegation No. 14-14-C; and redelegated by the Regional Administrator to EPA Region 10 Superfund Branch Chief.

3. Respondents agree to undertake all activities required by this Order. In any action by EPA or the United States to enforce this Order, Respondents consent to, and agree not to contest, the authority or jurisdiction of EPA, in accordance with the delegations set forth above, to issue or enforce this Order, and agree not to contest the validity of this Order or its terms.

III. PARTIES BOUND

4. This Order shall apply to and be binding upon Respondents, their successors, and assigns. Notwithstanding the terms of any contract, Respondents shall be responsible for ensuring that their agents' actions comply with this Order. The signatory to this Order on Respondents behalf certifies that he or she is authorized to execute and legally bind Respondents to

this Order. No change in ownership, business organization, or other status of Respondents, or of any portion of the Site, shall alter Respondents' duties under this Order. Where this Order creates duties upon Respondents, any directory language, including the words "will," or "shall", when used in reference to any action to be taken by EPA, is intended only, and shall be interpreted, as condition(s) precedent to Respondents' duty(s), and not as any duty of EPA to act, or to act within a specified time period.

5. Respondents shall provide a copy of this Order to any subsequent owners or successors in interest before any ownership rights or stock or assets in a corporate merger or acquisition involving Respondents are transferred. Respondents shall notify EPA at least 30 days before any such transfer. Respondents shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants retained to perform any work under this Order, within fourteen (14) days after the effective date of this Order, or the date such services are retained, whichever is later.

IV. STATEMENT OF PURPOSE

6. The objectives of this Order are: (a) to determine the nature and extent of contamination at and from the Site, and the nature and extent of any threat to the public health, welfare, or the environment presented by the release or threat of release of hazardous substances, pollutants, or

contaminants at or from the Site, by conducting a remedial investigation; (b) to determine and evaluate alternatives for remedial action to prevent, mitigate or otherwise respond to any release or threat of release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a feasibility study; and (c) to provide for recovery by EPA of its Costs incurred with respect to the Site or the implementation of this Order.

7. The activities required by this Order are subject to approval by EPA and shall provide all necessary and appropriate information for the RI/FS, and for the preparation by EPA of a Record of Decision ("ROD") in accordance with the requirements of CERCLA, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300, as amended. The activities conducted pursuant to this Order shall be conducted in accordance with all applicable EPA guidance, policies, and procedures.

8. EPA recognizes that the FMC elemental phosphorus facility currently is subject to investigative requirements under the Resource Conservation and Recovery Act, 42 U.S.C. § 6901 et seq. ("RCRA"). EPA will use its best efforts to coordinate and avoid duplication between the RCRA and CERCLA programs with respect to the Site. Such coordination shall include, but not be limited to: (1) using information already provided to EPA for RCRA purposes to satisfy CERCLA requirements; (2) using best efforts to design the RI to satisfy RCRA requirements for a RCRA

Facility Investigation ("RFI"); and (3) using best efforts to ensure that any remediation that may be warranted during the RI/FS, such as source control measures, will be designed to satisfy both RCRA interim remedial action and CERCLA removal requirements.

V. DISCLAIMER

10. By signing and thereby agreeing to issuance of this Order, and taking action pursuant to its terms, Respondents do not admit or adopt EPA's Findings of Fact or Conclusions of Law set forth herein, or the jurisdiction of any entities other than EPA or the United States with respect to this Site. Except in any judicial or administrative proceeding by EPA or the United States to enforce this Order or any judgment relating to it, the Findings of Fact and Conclusions of Law as set forth herein shall not be admissible in evidence. Respondents shall not contest the validity or terms of this Order, or the procedures underlying or relating to it in any action brought by EPA or the United States pursuant to this Order.

VI. EPA FINDINGS OF FACT

11. The Eastern Michaud Flats Site (hereinafter and hereinbefore referred to as the "Site") includes 2,530 acres in Power and Bannock Counties about two miles west of Pocatello, Idaho. A portion of this Site is within the boundaries of the Fort Hall Indian Reservation. Within the Site are two adjacent

phosphate processing facilities, the FMC Corporation (FMC) and the J.R. Simplot Company (Simplot). Operating on the FMC property is Bannock Paving which utilizes slag from FMC in its operations. The two phosphate facilities occupy the north 1/2 of Sections 13 and 18, the south 1/2 of Section 7, and the southeast 1/4 of Section 12; Township 6S, Range 33E. The coordinates of the two facilities are approximately 42 54' 34" north latitude and 112 31" 21" west longitude. The Site encompasses the areal extent of contamination deemed necessary by EPA for implementation of any response action.

12. Respondents FMC and Simplot own and operate adjacent phosphate processing facilities which are located within the Site. Respondent FMC is a corporation organized and existing under the laws of the State of Delaware and doing business in the State of Idaho. Respondent Simplot is a corporation organized and existing under the laws of the State of Nevada and doing business in the State of Idaho.

13. The terrain slope and surface drainage of the two facilities is to the north-northwest. The Portneuf River adjoins the Simplot facility and discharges into the American Falls Reservoir, which is located approximately 4-1/2 miles north of the Site. The Portneuf River and American Falls Reservoir are used for irrigation, fishing, and recreation. Approximately 1.75 miles downstream of the site is a fish hatchery.

14. Two main aquifer systems are reported to exist in the Michaud Flats area: an upper, unconfined aquifer formed by

the deposits of the Michaud Gravels; and a lower, confined system in the Bighole Basalt, Sunbeam Formation, Pediment Gravel, and Starlight Formation. The fine-grained deposits of the American Falls Formation act as a confining layer between these two systems in most parts of the Michaud Flats area. Groundwater flow in the unconfined aquifer is reportedly to the north-northeast, towards the Portneuf River. There are numerous springs located in the floodplain of the river and in low areas south of the American Falls Reservoir. These springs may be fed by this upper aquifer. Approximately 0.5 mile north of Simplot is the Batiste Spring. The Batiste Spring provides drinking water to 1,200 to 1,400 Pacific Railroad employees and 30 residences within the Pocatello City Limits. Groundwater flow in the confined aquifer is reportedly towards the north to northwest, under natural conditions. The unconfined and confined aquifers are both utilized for drinking, irrigation, and industrial purposes. Public and private wells within 3 miles of the site provide drinking water to an estimated 55,000 people and are also used to irrigate over 2,100 acres of forage crops.

15. The following waste streams for the FMC facility were identified in the April 1988 Site Inspection Report by Ecology and Environment, Inc. (E&E):

A. Calcium Silicate Slag The waste slag is tapped from the furnaces into a large pit where it is sprayed with water for cooling and fracturing. Some of this slag has been used by Bannock Paving

for use as a highway construction material while the remainder is deposited on a large waste pile in the southern portion of the site. According to the E&E report, the waste slag contains concentrations of arsenic, barium, cadmium, chromium, lead, and zinc.

B. Ferrophos Ferrophosphorus residue from the electric furnace is a mixture of iron-phosphorus compounds generally containing chromium and vanadium. The ferrophosphorus is crushed, stored on bare ground, and later sold as a byproduct.

C. Precipitator Dust/Slurry The electrostatic precipitator dust is slurried and pumped into a cooling pond. Three previously used precipitator slurry ponds were unlined. Two of these ponds were taken out of service in 1982 and one in 1987. The precipitator slurry solids contain concentrations of cadmium, chromium, lead, and zinc.

D. Phossy Water/Solids Phossy water is used to condense the elemental phosphorus. The phossy water is pumped to a series of four single lined (PVC) ponds for clarification. These ponds have been in use since 1980 when the previously used, unlined pond, was taken out of service. The settled solids from the ponds are dredged and the

material is periodically dredged and placed in disposal areas or ponds. The phossy solids contain concentrations of phosphorus, arsenic, barium, cadmium, chromium, lead, selenium, and zinc. The phossy liquids (dissolved) contain the same constituents except selenium.

E. Calciner Scrubber Water The exhaust gas stream from each calciner has a venturi scrubber to control particulate emissions. Prior to 1988 the scrubber water was sent to an unlined pond for evaporation. This water contains concentrations of phosphorus, arsenic barium, cadmium, chromium, lead, and zinc.

16. The following waste streams for the Simplot facility were identified in the April 1988 Site Inspection Report by Ecology and Environment, Inc.:

A. Gypsum Solids Gypsum is produced at a rate of approximately 1.34 million tons per year from the phosphoric acid manufacturing process. There are approximately 28 million cubic yards of gypsum in the present stack. The pile covers about 80 hectares, is 18 meters high, and is constructed on windblown silt loess. The gypsum solids contain arsenic, barium, cadmium, chromium, lead, vanadium, and zinc.

B. Process Liquids Process liquids include water used to slurry the residual gypsum to the disposal pile, and excess process water from the water reclaim system including scrubber water, phosphoric acid sluice water and other water streams from the fertilizer production process. Wastewater streams from the water reclaim system are contaminated with phosphoric acid, fluorides, sulfates, and particulates. Simplot generates approximately 39,000 tons of phosphate ore fines per year from the calciner scrubbers. The calciner sludge is disposed of onto the gypsum piles.

C. Spent Oils/Solvent Prior to 1973 all spent oils and solvents were disposed of on-site. Until 1979 the spent oil/solvents were applied to back roads in the gypsum storage area.

17. Between 1972 to 1973, the Idaho Department of Health and Welfare conducted a groundwater monitoring study downgradient of the two facilities. Groundwater samples analyzed by the State of Idaho indicated levels of arsenic, lead, and cadmium above the Primary Federal Drinking Water Standards. A downgradient well at the Pilot House Cafe was condemned in 1976 due to high arsenic levels.

18. In 1977, the United States Geologic Survey (USGS) prepared an Environmental Impact Statement which attributed high

phosphate levels in the Batiste Spring to the nearby phosphorus industries.

19. In 1980 and 1989, the USGS conducted groundwater monitoring studies to determine water quality in the vicinity of FMC and Simplot. The 1980 report concluded that there is some contamination in several wells in the upper aquifer. The 1989 study concluded that there was some metal contamination but values did not exceed maximum contaminate levels.

20. During 1987 E&E conducted a site inspection at FMC and Simplot. A total of 24 wells (six production, 13 monitoring, and five domestic) and one spring were sampled to assess the extent of possible groundwater contamination downgradient of the two facilities. Some of the major conclusions of this study are summarized below:

A. Groundwater in both the confined and unconfined aquifers has elevated levels of cadmium, arsenic, manganese, and cobalt. A potential contaminant plume was identified in the unconfined aquifer extending northeast from the FMC facility.

B. Possible sources of groundwater contamination are a variety of unlined ponds that have been used at the site.

C. The majority of the monitoring wells, domestic, and production wells are screened below the confining clay layer. The number of wells screened in the unconfined aquifer are not

sufficient to determine the magnitude or extent of the apparent contamination.

21. In recent years, both Respondents have instituted a number of environmental improvements at their facilities. These measures have included removing some of the unlined impoundments and waste ponds from service, and installing liners at some of the ponds that are currently used. EPA has made no determination as to the adequacy or effectiveness of these measures.

22. Potential pathways for exposure of human beings to the hazardous substances, pollutants and contaminants identified at the Site could potentially include ingestion, inhalation or dermal contact, as a result of drinking, cooking, bathing, and other domestic, and agricultural uses of contaminated groundwater. Ingestion, inhalation, or dermal contact with the hazardous substances, pollutants, and contaminants identified at the Site can potentially cause a wide range of human health effects. A goal of this Order is to determine the concentrations of these substances at the Site, and whether such concentrations present unacceptable risks to human health and the environment. Potential risks presented by specific hazardous substances at the Site include the following:

A. Lead can produce a variety of systemic (noncarcinogenic) toxicities and is absorbed via the gastrointestinal tract more efficiently in children than in adults. Chronic lead toxicity

may also result in renal or hematological effects.

B. Renal damage is one primary clinical manifestation resulting from oral, low level, chronic exposure to cadmium. The toxic nature of cadmium is exacerbated by its long half-life (10 to 30 years) in the kidney and liver, where it tends to accumulate. Cadmium is also an irritant to the upper respiratory tract. Chronic, low level exposure to cadmium fumes or dust may result in pulmonary fibrosis and emphysema.

C. Arsenic is a human carcinogen. The principal routes of entry into the body are inhalation and ingestion.

D. Chromium compounds are irritants and corrosives and can enter the body by ingestion, inhalation, and through the skin. Many chromium compounds are human and experimental carcinogens of lungs, nasal cavity, stomach and larynx.

23. The Site was listed on the National Priorities List ("NPL") on August 30, 1990 (55 Fed. Reg. 35502).

VII. EPA CONCLUSIONS OF LAW

24. The site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(21).

25. Wastes and constituents thereof at the Site and substances found at the Site and identified in Section VI

entitled EPA Findings of Fact are "hazardous substances" as defined in section 101 (14) of CERCLA, 42 U.S.C. § 9601(14), or constitute "any pollutant or contaminant" that may present an imminent and substantial danger to public health or welfare under Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1).

26. The hazardous substances or pollutants or contaminants at the Site, or the past, present or potential migration of hazardous substances, or pollutant or contaminant at or from the Site, constitute actual and/or threatened "releases" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

27. Each Respondent qualifies as a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

28. Each Respondent is a responsible party as set forth in Sections 104, 107, and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607, and 9622.

29. The actions required by this Order are necessary to protect the public health or welfare or the environment, are in the public interest, are not inconsistent with CERCLA or the NCP, and will expedite effective remedial action and minimize litigation.

VIII. NOTICE TO STATE, TRIBE, U.S. DEPARTMENT OF INTERIOR

30. Notice of the issuance of this Order, and that EPA is the lead agency for the coordination, oversight, and enforcement thereof, has been provided to the State of Idaho through its Department of Health and Welfare, Division of

Environmental Quality ("IDHW"), to the Shoshone-Bannock Tribe, and to the United States Department of the Interior.

IX. WORK TO BE PERFORMED

31. All work performed pursuant to this Order shall be under the direction and supervision of qualified persons. Within thirty (30) days after the effective date of this Order, and before any work begins at the Site, Respondents shall submit the names, addresses, and qualifications, including experience and professional affiliations, and the proposed scope of work of all key personnel of Respondents, primary contractors, laboratories, and primary consultants to be used in performing activities pursuant to this Order to EPA in writing. If Respondents elect to use any additional contractors or laboratories subsequent to commencement of activities at the Site, Respondents shall submit the above information listed in this paragraph to EPA in writing at least fourteen (14) days prior to any such use. If EPA requests such information regarding subcontractors, Respondents will provide this information within twenty-one (21) days of EPA's request. If EPA disapproves, in writing, any of the above, Respondents shall make replacement selection(s) within sixty (60) days of receipt of written disapproval from EPA. If EPA subsequently disapproves of the replacement(s), EPA may terminate this Order, conduct a complete RI/FS and/or conduct or authorize any other response activities it deems necessary, and seek Costs therefore and penalties from Respondents. EPA will not

disapprove the above on an arbitrary or capricious basis.

32. *Respondents shall conduct* activities and submit deliverables for EPA review, comment, approval, or modification, as provided in the attached RI/FS Statement of Work ("SOW"), which is incorporated in and an enforceable part of this Order by this reference. All such work shall be conducted in accordance with the requirements of CERCLA, the NCP, and all applicable EPA guidance, including, the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA", EPA/540/G-89/004 (October 1988) ("RI/FS Guidance"), guidance referenced therein, and guidance referenced in the SOW, as may be amended or modified by EPA. The general activities Respondents shall perform are identified below, followed by a list of deliverables to be submitted by Respondents for EPA review and approval. Upon written approval, Respondents may combine specified deliverables into one or more documents. The specific tasks Respondents shall perform are described more fully in the SOW and guidance. All work performed pursuant to this Order shall be in accordance with the schedules, standards, specifications, and other requirements of this Order, as initially approved or modified by EPA, or as may be amended or modified by EPA from time to time. For each and every deliverable, report, memorandum, plan, or other item referenced in any of subparagraphs "A" through "H" of this paragraph, or in any of the numbered sub-subparagraphs thereunder, if EPA disapproves or requires modification or revision of any

deliverable, report, memorandum, plan, or other item, in whole or in part, Respondents shall submit a modified or revised version thereof to EPA which is responsive to all EPA directions, comments, or requirements within fourteen (14) days after receiving such directions, comments or requirements from EPA, unless a shorter or longer time is specified by EPA. The EPA disapproval, modification, or revisions required pursuant to this paragraph must be in writing.

A. Task I: Scoping. EPA will determine the specific objectives of the RI/FS and the general management approach for the Site, as stated in the SOW. Respondents shall conduct the remainder of scoping activities as described in the SOW and referenced guidance. At the conclusion of the project planning phase, Respondents shall submit the following deliverables to EPA:

1. RI/FS Work Plan. Within ninety (90) days after the effective date of this Order, Respondents shall submit a complete RI/FS Work Plan to EPA.
2. Sampling and Analysis Plan ("SAP"). Within ninety (90) days after the effective date of this Order, Respondents shall submit a SAP to EPA which shall consist of a Field Sampling Plan ("FSP") and a Quality Assurance Project Plan ("QAPP"), as described in the SOW and guidance.
3. Health and Safety Plan ("HSP"). Within ninety (90) days after the effective date of this Order,

Respondents shall submit an HSP for the Site. Following written EPA approval, or modification or revision as required by EPA, the RI/FS Work Plan and the SAP shall be incorporated in, and be an enforceable part of this Order.

B. Task II: Community Relations Plan. EPA will prepare a Community Relations Plan in accordance with EPA guidance and the requirements of CERCLA and the NCP. As requested by EPA, Respondents shall provide information supporting EPA's community relations programs related to the Site, and shall participate in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site. To the extent practicable, EPA will take into consideration the schedules of Respondents and their contractors when scheduling public meetings.

C. Task III: Site Characterization. Following written EPA approval or modification of the RI/FS Work Plan and SAP, Respondents shall implement these plans to characterize the Site. Respondents shall complete Phase I and, if necessary, Phase II characterization of the Site, including data collection, analysis, and validation, within sixteen (16) months after written EPA approval or modification of the RI/FS Work Plan and SAP. Respondents shall provide EPA with analytical data in a form showing the sampling location, medium, and results, in the monthly progress reports as requested by EPA. Respondents shall notify EPA in writing within seven (7) days after completion of field activities. During Site characterization, Respondents shall submit the following deliverables to EPA, as described in

the SOW and RI/FS Work Plan:

1. Technical Memorandum on Modeling of Site Characteristics. If EPA or Respondents propose that field data collection for modeling is appropriate, within thirty-five (35) days after date of receipt of such proposal, Respondents shall submit a Technical Memorandum on Modeling of Site Characteristics outlining candidate modeling techniques, identifying the modeling methods selected, and defining the data requirements needed to support such a model.

2. Preliminary Site Characterization Summary. Within fifty-six (56) days after final data and analysis, as specified in the RI/FS Work Plan, Respondents shall submit a Preliminary Site Characterization Summary to EPA.

3. Draft Remedial Investigation Report. Within forty-two (42) days after receipt by Respondents of EPA's Risk Assessment, or within one hundred and five (105) days after issuance of the Preliminary Site Characterization, whichever is later, Respondents shall submit a draft Remedial Investigation Report in accordance with the SOW, the RI/FS Work Plan and SAP.

D. Task IV: Risk Assessment. Actual and potential risks to human health and the environment shall be identified and

characterized by EPA in a Risk Assessment Report. As requested by EPA, Respondents shall provide information for EPA's risk assessment.

E. Task V: Treatability Studies. Respondents shall conduct treatability studies, except where Respondents can demonstrate in writing to EPA satisfaction that they are not needed. Major components of the treatability studies include: determinations of need for studies, the scope, design, and completion of studies, as described in the SOW. While performing treatability studies, Respondents shall submit the following deliverables to EPA:

1. Identification of Candidate Technologies Memorandum. An Identification of Candidate Technologies Memorandum shall be submitted within fifty-six (56) days after EPA written approval of the RI/FS Work Plan.

2. Treatability Testing Statement of Work. Respondents shall submit a Treatability Testing Statement of Work within twenty-eight (28) days after EPA notifies Respondents in writing that treatability testing shall be required, unless a shorter or longer time is specified by EPA.

3. Treatability Testing Work Plan. Within twenty-eight (28) days after EPA written approval of the Treatability Testing Statement of Work, Respondents shall submit a Treatability Testing

Work Plan, including a schedule for specified tasks.

4. Treatability Study Sampling and Analysis Plan. Within twenty-eight (28) days after Respondents' receipt of a written determination by EPA, or upon a determination by Respondents, that there is a need for a separate or revised QAPP or FSP, Respondents shall submit a Treatability Study Sampling and Analysis Plan to EPA.

5. Treatability Study Health and Safety Plan. Simultaneously with the Treatability Study Sampling and Analysis Plan, if required by EPA, Respondents shall submit a Treatability Study Health and Safety Plan for the Site to EPA.

6. Treatability Study Evaluation Report. Within forty-two (42) days after the completion of treatability testing, Respondents shall submit a Treatability Study Evaluation Report as described in the SOW and RI/FS Work Plan.

G. Task VI: Development and Screening of Alternatives. Respondents shall develop an appropriate range of management options for the remediation of the hazardous substances, pollutants and contaminants at the Site which will be evaluated through the development and screening of alternatives, as provided in the SOW and RI/FS Work Plan. During the development and screening of alternatives, Respondents shall

submit the following deliverables to EPA:

1. Memorandum on Remedial Action Objectives. Within twenty-eight (28) days after Respondents receipt of EPA's Risk Assessment or after the submittal date of Preliminary Site Characterization Summary, whichever is later, Respondents shall submit a Memorandum on Remedial Action Objectives.

2. Memorandum on Development and Preliminary Screening of Alternatives, Assembled Alternatives Screening Results and Final Screening. Within forty-two (42) days after submittal of the Memorandum on Remedial Action Objectives, Respondents shall submit a memorandum summarizing the development and screening of remedial alternatives, including an alternatives array document as described in the SOW.

H. Task VII: Detailed Analysis of Alternatives. Respondents shall conduct a detailed analysis of remedial alternatives, as described in the SOW and the RI/FS Work Plan. During the detailed analysis of alternatives, Respondents shall submit the following deliverables to EPA:

1. Report on Comparative Analysis and Presentation to EPA. Within sixty-three (63) days after EPA's written approval of a memorandum on the development and screening of remedial alternatives, Respondents shall submit a Report on

Comparative Analysis to EPA summarizing the results of the comparative analysis performed between the remedial alternatives. Within twenty-eight (28) days of submitting the original Report on Comparative Analysis, Respondents shall make a presentation to EPA during which Respondents shall summarize the findings of the remedial investigation in relation to remedial action objectives, and present the results of the nine criteria evaluation and comparative analysis, as described in the SOW.

2. Draft Feasibility Study Report. Within seventy (70) days of the date of presentation to EPA described in the preceding subparagraph, Respondents shall submit a draft Feasibility Study Report. Respondents shall refer to the RI/FS Guidance for the content and format of this report. The report as amended, and the administrative record, shall provide the basis for the EPA Proposed Plan pursuant to Sections 113(k) and 117(a) of CERCLA, 42 U.S.C. §§ 113(k) and 117(a), and shall document the development and analysis of remedial alternatives.

33. Respondents shall not proceed further with subsequent activities or tasks until Respondents have received written EPA approval for the RI/FS Work Plan and SAP. If

treatability testing or studies are required, Respondents shall not proceed further with subsequent treatability testing or study activities or tasks until Respondents have received written EPA approval for the Treatability Testing Work Plan and Sampling and Analysis Plan. Respondents shall proceed with all other tasks and activities in accordance with the schedule set forth in this Order and the SOW. Respondents may proceed with RCRA-related work so long as it does not interfere with the activities required by this Order.

34. EPA may stop Respondents from proceeding at any time, either temporarily or permanently, on any task(s), activity(s) or deliverable(s) at or relating to the Site and/or the implementation of this Order. Within seven (7) days after any such stoppage, a written explanation therefor will be given to Respondent.

35. If Respondents modify or revise any deliverable, report, plan, or other submittal after receipt of EPA comments, directions, or requirements, and EPA subsequently disapproves the revised submittal, or if subsequent submittals do not, in EPA's judgment, reflect a good faith effort by Respondents to address EPA's comments, directions or requirements for changes, EPA may seek stipulated or statutory penalties; allow Respondents an additional opportunity to resubmit a deliverable; perform its own studies; complete the RI/FS (or any portion of the RI/FS); and/or take any response action at the Site it deems necessary, in accordance with its authority, and seek reimbursement from

Respondents for its Costs therefore; and/or seek any other appropriate relief.

36. If EPA prohibits Respondents from performing some tasks, and/or takes over or causes others to perform some tasks, but does not remove Respondents' duty to prepare the RI/FS pursuant to this Order, Respondents shall incorporate and integrate information supplied by EPA into the final RI/FS report as directed by EPA.

37. The absence of express EPA comment, approval, or disapproval of any submission within any specified time period shall not be construed as approval by EPA. Except as set forth in Paragraphs 33 and 34 above, Respondents are responsible for the timely preparation of deliverables acceptable to EPA. Comments or suggestions by EPA shall not be construed as a disapproval unless they so specify.

38. Respondents shall, prior to the shipment of any hazardous substances generated as a result of any RI/FS activity or work, from the Site to an out-of-state waste management facility, submit written notification, as set forth below, to the appropriate state environmental official in the receiving state, and to the EPA Project Coordinator. This notification requirement shall not apply when the total volume of such a shipment will not exceed ten (10) cubic yards. Notification shall include: 1) the name and location of the receiving facility; (2) the type and quantity of hazardous substances to be shipped; (3) the expected shipment schedule; and (4) the mode of

transportation. Respondents shall submit written notification of any changes in the shipment plan as set forth in the notification. Notification of the selection of the receiving facility and state shall be made at least thirty (30) days before any hazardous substances are actually shipped.

X. MODIFICATION OF THE WORK PLAN

39. If, at any time, Respondents identify a need for additional activities for the work required by this Order, Respondents shall submit a memorandum to the EPA Project Coordinator within twenty-one (21) days after such need has been identified explaining the need for these activities, and the adjustments of time therefore. EPA will determine whether these activities shall be incorporated into any deliverable(s) and whether an adjustment of time will be granted.

40. In addition to the requirements of Section 103 of CERCLA, 42 U.S.C. § 9603, and all other statutory or regulatory reporting requirements, Respondents shall immediately orally notify EPA of any conditions at the Site relating to, resulting from, or affecting the performance of, any work required by this Order which may pose an immediate threat to human health or welfare or the environment. Respondents shall also orally notify the EPA Project Coordinator within three (3) days of discovery of any unanticipated or changed circumstances at the Site which may in any way affect the implementation of the work required pursuant to this Order. If, for any reason, the EPA Project

Coordinator cannot be reached, Respondents shall notify the EPA Region 10 Hazardous Waste Section Chief, or leave detailed messages with both of their respective offices if neither can be reached. EPA may modify any work to be performed pursuant to this Order or require additional RI/FS work in response to any change in circumstances in accordance with Paragraph 41 below.

41. EPA may determine at any time that additional work may be necessary to accomplish the objectives of the RI/FS as set forth in the SOW. EPA may require Respondents to perform such additional work or other response activity in addition to the work initially approved or modified. Respondents shall confirm their willingness to perform any such additional work in writing within fourteen (14) days after receipt of the EPA request thereof, or properly invoke the dispute resolution procedures set forth in Section XVIII of this Order. Subject to the resolution of any dispute, Respondents shall implement the additional tasks EPA determines are necessary. The additional work shall be completed according to the written standards, specifications, and schedule set forth or approved by EPA. EPA may conduct all or part of such work itself, and may seek reimbursement of Costs from Respondents, and/or any other appropriate relief.

XI. QUALITY ASSURANCE

42. Respondents shall assure that all work performed, samples taken and analyses conducted, conform to the requirements of the SOW, the QAPP, and guidance identified therein, and that

all field personnel shall be properly trained for each task they may perform, including strict adherence to EPA chain of custody procedures.

XII. FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT, RECORD OF DECISION, ADMINISTRATIVE RECORD.

43. EPA retains full authority and responsibility for all aspects of public participation including the release to the public of the RI/FS Report, the preparation and release to the public of the Proposed Plan and the ROD, as set forth in CERCLA and the NCP.

44. EPA shall provide Respondents with a copy of the Proposed Plan and the ROD.

45. EPA will establish, maintain, and determine the contents of the administrative record file for the selection of remedial action as provided by the NCP. Any letters or memoranda from Respondents regarding EPA's selection of remedial action for the Site, including all attachments thereto, that Respondents request EPA to retain shall be included in either the administrative record file referred to in this paragraph, or in an administrative record referred to in Paragraph 62, below. Respondents shall submit documents developed during the course of the RI/FS to EPA upon which response selection may be based. Upon written request by EPA, Respondents shall submit copies of plans, task memoranda, including all documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory

analytical reports, and other reports to EPA. Respondents shall also submit any previous studies conducted under state, local, or other federal authorities relating to response selection, and all communications between Respondents and state, local, or other federal authorities concerning response selection. Respondents' obligation to produce documents under this paragraph shall exclude those portions of documents which are privileged from discovery as attorney-client privileged communications or as attorney work product, as defined in Federal Rule of Civil Procedure 26. For any document or portion thereof sought to be withheld hereunder, Respondents shall identify, in writing, the subject, author, addressee, and date, as well as any other information necessary to determine the basis of Respondents' claim of privilege or of attorney work product. EPA shall establish a community information repository at or near the Site to house a copy of the administrative record. Nothing in this paragraph shall act as a waiver of any rights Respondents may have, under any applicable law, to challenge the Record of Decision ("ROD") for the Site to be issued by EPA following the RI/FS required by this Order.

XIII. PROGRESS REPORTS AND MEETINGS

46. Respondents shall make presentations at, and participate in, meetings and telephone conferences at the request of EPA during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the

RI/FS, topics will include anticipated problems or new issues. Meetings and telephone conferences will be scheduled by EPA. To the extent practicable, EPA will take into consideration the schedules of Respondents and their contractors.

47. In addition to the deliverables set forth in this Order, Respondents shall provide monthly progress reports to EPA by the 10th day of each month following the effective date of this Order, which at a minimum: (1) describe the actions which have been taken to comply with this Order during the previous month; (2) include all results of sampling and tests and all other data received by the Respondents which have not been previously given to EPA; (3) describe all work planned for the next two months with schedules relating such work to the overall project schedule, including percentage of completion data; and (4) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and all solutions developed and implemented or planned to address any actual or anticipated problems or delays.

XIV. SAMPLING, ACCESS, AND DATA AVAILABILITY/ADMISSIBILITY

48. All results of sampling, tests, modeling, or other data, and all laboratory analytical reports generated by Respondents, or on Respondents' behalf, during implementation of this Order, shall be reported upon by Respondents to EPA in the monthly progress report as described in Section XIII of this Order. All other information or records created, maintained, or

received by Respondents or their agents, employees, accountants, contractors, or consultants which is in any way related to the implementation of this Order, including: raw data, contractual documents, invoices, receipts, work orders, disposal records, and any other records or documents not previously required herein shall promptly be made available to EPA on request as soon as practicable, but in any event within thirty (30) days of Respondents' receipt of EPA's request. EPA shall be permitted to copy all such documents. Respondents' obligation to produce documents under this paragraph shall exclude those portions of documents which are privileged from discovery as attorney-client privileged communications, or as attorney work product as defined in Federal Rule of Civil Procedure 26. For any document or portion thereof sought to be withheld hereunder, Respondents shall identify in writing the subject, author, addressee, and date, as well as any other information necessary to determine the basis of Respondents' claim of privilege or of attorney work product.

49. Respondents shall notify EPA at least seven (7) days prior to conducting any field events described in the SOW, RI/FS Work Plan, or SAP. Upon request by EPA, or its authorized representative, Respondents shall allow split or duplicate samples to be taken by EPA or its authorized representatives of any material sampled in connection with the implementation of this Order. All of Respondents' split samples shall be analyzed by the methods identified in the QAPP. EPA will make the results

of such split or duplicate sampling and analysis available to Respondents. Upon request by Respondents, EPA will allow split or duplicate samples to be taken by Respondents of any material taken from the Site for purposes of this RI/FS and sampled by EPA or its authorized representative.

50. EPA and its designated representatives, which may include but are not limited to other governmental entities with jurisdictional authority, shall be permitted to observe any work, other than office work, carried out pursuant to this Order. Respondents shall permit such designated representatives full access to, and freedom of movement at the Site and any other premises where work under this Order is to be performed, at all times, including, but not limited to, any time that work under this Order is being performed, for purposes of inspecting or observing Respondents' progress in implementing the requirements of this Order, verifying information submitted to EPA by Respondents, conducting investigations relating to contamination at the Site, or for any purpose within EPA's statutory and/or regulatory function, including video or audio recording of any activities at the Site. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under federal law. All persons with access to the Site under this paragraph shall comply with all approved health and safety plans developed pursuant to this Order, and health and safety plans applicable to Respondents' personnel, so long as these plans do not interfere with EPA's regulatory functions.

51. Respondents may assert a claim of business confidentiality for part or all of the information submitted to or collected by EPA pursuant to this Order in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. Part 2, Subpart B. This claim shall be asserted in the manner described by 40 C.F.R. 2.203(b), and substantiated when made. Information determined to be confidential business information by EPA, will be given the protection specified in 40 CFR, Part 2, Subpart B. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to Respondents. Respondents shall not assert any confidentiality claim with respect to any data related to Site conditions, sampling, or monitoring, except such data which relates primarily to ongoing plant processes and operations, and the release of which would compromise a trade secret or protected process or operation.

52. Respondents shall not object to any use of any data gathered, generated, or evaluated by EPA or Respondents in the performance or oversight of any work which has been verified according to the quality assurance/quality control (QA/QC) procedures required by this Order or any EPA-approved work plan or sampling and analysis plan. If Respondents object to any use of any other data relating to the RI/FS, Respondents shall submit a report to EPA which identifies and explains Respondents' objections, describes any proposed acceptable uses of the data, and specifically identifies any proposed limitations on the use

of the data. This report must be submitted to EPA no later than the progress report following the progress report containing the data. In any action by EPA to enforce this Order, Respondents reserve the right to present arguments regarding the relevance of, or weight to be given any data.

53. Respondents shall timely obtain, in the form of a written access agreement(s), access to any portion of the Site, and to any off-Site premises where work under this Order is to be performed, which are owned by anyone other than Respondents. This Order does not convey any rights of access to Respondents. Such agreement(s) shall provide access for EPA, its contractors and oversight officials, and Respondents and their authorized representatives, and shall specify that Respondents are not EPA's representative with respect to any liability associated with activities required by this Order. Copies of all such agreements shall be provided to EPA prior to the initiation of any field activities in such areas. If Respondents are unable to obtain access to any premises necessary for any task or work required by this Order, under circumstances which constitute "Force Majeure" as defined in Section XX of this Order, EPA may obtain access for Respondents, or perform tasks or activities under its own authority, or terminate this Order. If EPA performs any tasks or activities and does not terminate this Order, Respondents shall: perform all required work Respondents have the necessary access to perform; reimburse EPA for all Costs EPA incurs in performing any tasks or activities; integrate the results of any tasks or

activities undertaken by EPA into Respondents' deliverables; and indemnify the United States for any liability arising out of the performance of any such tasks or activities by EPA to the extent set forth in Paragraph 97 of this Order. Respondents shall reimburse EPA for all Costs and attorney fees incurred by the United States to obtain access.

XV. DESIGNATED PROJECT COORDINATORS

54. All notices and documents including reports, approvals, disapprovals, and other correspondence which must be submitted under this Order, shall be sent by certified mail, return receipt requested, to the following addressees or to any other addressees which Respondents and EPA designate in writing.

A. Documents submitted to EPA shall be sent as follows:

1. Four (4) copies to EPA, forwarded to:

Bill Adams, M/S HW-113,
U.S. EPA, Region 10
1200 Sixth Avenue
Seattle, Washington 98101

2. One (1) copy to each of the following:

Mike Thomas
State of Idaho
Department of Health and Welfare
Division of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706

Boyd Roberts
State of Idaho
Department of Health and Welfare
Pocatello Field Office
224 S. Arthur

Pocatello, Idaho 83204

Roger Turner
Shoshone-Bannock Tribe
P.O. Box 306
Fort Hall, Idaho 83203

B. Documents to be sent to Respondents shall be sent to:

Earl Mapes
J.R. Simplot Company
P.O. Box 912
Pocatello, Idaho 83204

Jim Sieverson
FMC Corporation
Phosphorus Chemicals Division
P.O. Box 4111
Pocatello, Idaho 83202

55. Within fourteen (14) days of the effective date of this Order, EPA and Respondents shall each designate their own Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this Order. To the extent possible, communications between Respondents and EPA shall be directed to the Project Coordinators by mail, with copies to such other persons as EPA or the Respondents may designate.

56. Respondents' Project Coordinators shall be qualified individuals with experience in hazardous waste investigation and handling, and shall have the technical expertise and skills necessary to direct and supervise the activities required under this Order. Prior to the effective date of this Order, Respondents shall submit the name, title, qualifications, experience, professional affiliations, and background of the individuals selected as Respondents' Project

Coordinators to EPA in writing.

57. EPA may disapprove Respondents' designated Project Coordinator(s) which shall require Respondent(s) to make another selection within fourteen (14) days of receipt of any such disapproval by EPA. Respondents may elect to change their Project Coordinators by submitting written notification to EPA at least twenty-one (21) days before the effective date of such change, including all of the information required by Paragraph 56 above. EPA may change its Project Coordinator by sending a written notification of such change to Respondents at least twenty-one (21) days before the effective date of such change. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and On-Scene Coordinator (OSC) by the NCP, and shall have the authority, in accordance with the requirements of the NCP, to halt any work required by this Order and to take any necessary response action when he or she determines conditions at the Site may present an imminent and substantial endangerment to the public health or welfare or the environment. The absence of the EPA Project Coordinator from the area under study pursuant to this Order shall not be cause for any stoppage or delay of work.

58. EPA shall arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as required by Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). The oversight assistant may observe work and make inquiries in the absence of EPA, but is not authorized to modify any requirement

of this Order or any requirement developed pursuant to this Order in any work plan or other document.

XVI. OTHER APPLICABLE LAWS

59. All actions required to be taken pursuant to this Order shall be performed in accordance with the requirements of all applicable local, state, and federal laws and regulations. In accordance with Section 121 of CERCLA, 42 U.S.C. § 121, no permit shall be required for any portion of any activity pursuant to this Order conducted entirely on-Site. Off-Site disposal of hazardous substances shall comply with all applicable laws and regulations including but not limited to CERCLA, the Resource Conservation and Recovery Act, ("RCRA") 42 U.S.C. §§6901 et seq., and all applicable EPA guidance and policies.

XVII. RECORD PRESERVATION

60. Notwithstanding any record retention policy to the contrary, all records and documents created by Respondents, or on Respondents' behalf, which relate in any way to the implementation of this Order, shall be preserved by Respondents for a minimum of six (6) years after commencement of construction of any remedial action at the Site. After this six (6) year period, Respondents shall notify EPA at least ninety (90) days before any records are scheduled to be destroyed. If EPA requests that the documents be saved, Respondents shall, at no expense to EPA, give the documents or true and accurate copies

thereof to EPA.

XVIII. DISPUTE RESOLUTION

61. Any dispute under this Order may be addressed through the dispute resolution procedures of this Section, whether or not specifically authorized by the provisions of this Order.

62. If a dispute arises under this Order, Respondents shall notify EPA in writing as promptly as possible but in no event later than fourteen (14) days after receipt of EPA disapproval or comment, or after Respondents have become aware, or should reasonably have become aware, of the dispute. Respondents' written notification shall set forth Respondents' position in the dispute, and state all bases therefore. If Respondents so notify EPA, EPA and Respondents have an additional fourteen (14) days from EPA's receipt of Respondents' notification to resolve the dispute. If agreement is reached, the resolution shall be reduced to writing and signed by the parties. If agreement is not reached within this fourteen (14) day period, the dispute shall be resolved by the EPA Region 10 Superfund Branch Chief ("Branch Chief"). The Branch Chief, or the Branch Chief's designee, shall provide a written statement of EPA's decision to the Respondents, including the bases and reasons for the decision. All writings, documents, or materials exchanged pursuant to this paragraph shall be included in an administrative record for dispute resolution, which shall be

maintained by the EPA Project Coordinator.

63. Respondents shall proceed in accordance with EPA's decision regarding the matter in dispute, regardless of whether Respondents agree with the decision. If Respondents fail or refuse to fully implement EPA's decision, EPA may take any action it deems necessary, which is not inconsistent with this Order or its authority including implementation of its decision with recovery of its Costs from Respondents, enforcement of the decision, collection of stipulated penalties, and/or any other appropriate relief.

64. Respondents are not relieved of their obligations to perform and conduct activities and submit deliverables in accordance with any schedules incorporated into or developed pursuant to this Order, while a matter is pending in dispute resolution. The invocation of dispute resolution does not stay stipulated penalties under this Order.

XIX. STIPULATED PENALTIES

65. Respondents shall be liable for stipulated penalties, in accordance with this Section, for each day that Respondents fail to complete a designated deliverable in a timely manner, or fail to produce a designated deliverable of acceptable quality, or otherwise fail to exercise reasonable effort to meet the requirements of this Order, including the requirements of any deliverable listed in Paragraph 32 above. Penalties for failure to timely submit a designated deliverable shall begin to accrue

on the day after the deliverable is due. Penalties for failure to produce a designated deliverable of acceptable quality or failure to exercise reasonable efforts to meet the requirements of this Order, shall begin to accrue on the day after Respondents receive written notice of the failure from EPA, or the day performance is due, whichever is later. Penalties shall continue to accrue until Respondents have cured the failure. EPA may, in its sole discretion, stop or waive stipulated penalties if EPA finds that Respondents have attempted in good faith to comply with this Order.

66. Payment shall be due within thirty (30) days after receipt of a demand letter from EPA. Respondents shall pay interest on any unpaid balance at the end of this thirty (30) day period, at the rate established by the Department of Treasury pursuant to 30 U.S.C. § 3717. Respondents shall further pay a handling charge of one (1) percent, to be assessed at the end of each thirty (30) day period, and a six (6) percent per annum penalty charge to be assessed if any penalty is not paid in full within ninety (90) days after it is due.

67. Respondents shall make all payments by forwarding a check to:

U.S. Environmental Protection Agency
Region 10 Superfund Accounting
P.O. Box 371003M
Pittsburgh, PA 15251

Checks should identify the name of the Site, the account number, and the title of this Order. A copy of the check and transmittal

letter shall be forwarded to the EPA Project Coordinator.

68. For the following major deliverables, stipulated penalties shall accrue in the amount of $500 per day, per violation, for the first seven (7) days of noncompliance; $1,000 per day, per violation, for the eighth (8th) through fourteenth (14th) day of noncompliance; $3,000 per day, per violation, for the fifteenth (15th) day through the thirtieth (30th) day; and $7,500 per day, per violation, for the thirtieth (30th) day through the ninetieth (90th) day.

A. An original and any revised RI/FS Work Plan.

B. An original and any revised Sampling and Analysis Plan.

C. An original and any revised Remedial Investigation Report.

D. An original and any revised Treatability Testing Work Plan.

E. An original and any revised Treatability Study Sampling and Analysis Plan.

F. An original and any revised Feasibility Study Report.

69. For the following interim deliverables, stipulated penalties shall accrue in the amount of $250 per day, per violation, for the first seven (7) days of noncompliance; $500 per day, per violation, for the eighth (8th) through fourteenth (14th) day of noncompliance; $2,000 per day, per violation, for the fifteenth (15th) day through the thirtieth (30th) day; and

$5,000 per day, per violation, for the thirtieth (30th) day through the ninetieth (90th) day.

A. Technical Memorandum on Modeling of Site Characteristics.

B. Preliminary Site Characterization Summary.

C. Identification of Candidate Technologies Memorandum.

D. Treatability Testing Statement of Work.

E. Treatability Study Evaluation Report.

F. Memorandum on Remedial Action Objectives.

G. Memorandum on Development and Preliminary Screening of Alternatives, Assembled Alternatives Screening Results, and Final Screening.

H. Comparative Analysis Report.

70. For the monthly progress reports and for any failure to perform in accordance with the requirements of this Order, stipulated penalties shall accrue in the amount of $100 per day, per violation, for the first seven (7) days of noncompliance; $250 per day, per violation, for the eighth (8th) through fourteenth (14th) day of noncompliance; $2,000 per day, per violation, for the fifteenth (15th) day through the thirtieth (30th) day; and $5,000 per day, per violation, for the thirtieth (30th) day through the ninetieth (90th) day.

71. Penalties shall accrue but need not be paid during a properly invoked dispute resolution period. If Respondents do not prevail upon resolution, all penalties shall be due within

thirty (30) days after resolution of any such dispute.

72. If EPA decides corrections to any deliverable shall be reflected in any subsequent deliverable and does not require resubmission of the initial deliverable, stipulated penalties for the initial deliverable shall cease to accrue on the day of such decision by EPA. A single act or omission may not be the basis for more than one (1) stipulated penalty.

73. The stipulated penalty provisions of this Order do not preclude EPA from pursuing any other remedies or sanctions, including any applicable statutory penalties. Payment of stipulated penalties does not alter Respondents' obligations to complete performance under this Order.

XX. FORCE MAJEURE

74. "Force Majeure", for purposes of this Order, is defined as any event arising from causes beyond the control of Respondents or any entity controlled by Respondents, including Respondents' agents, consultants, contractors, and subcontractors, which delays the timely performance of any obligation under this Order notwithstanding Respondents' best efforts to avoid such delay. The requirement that Respondents use "best efforts" shall include using best efforts to anticipate potential Force Majeure events and using best efforts to address the effects of any such events as they may occur, and thereafter, such that the delay is minimized to the greatest extent practicable, and shall include, without limitation, agreeing to

reasonable conditions to obtain access as needed to property owned by the third parties. Examples of events that are not Force Majeure events include increased Costs or expenses of any work to be performed under this Order, or any financial inability or difficulty to perform any such work.

75. If any event occurs or has occurred which may delay the performance of any obligation under this Order, regardless of whether caused by a Force Majeure event, Respondents shall verbally notify the EPA Project Coordinator, as soon as possible, and not later than seventy-two (72) hours after Respondents knew or should have known that any event might cause a delay. Within seven (7) days thereafter, Respondents shall provide a written memorandum explaining the reasons for the delay including; its anticipated duration; all actions taken or to be taken to prevent or minimize the delay; a schedule for the implementation of any measures to be taken to mitigate its effects; a statement as to whether Respondents believe the event may cause or contribute to an endangerment to public health, welfare or the environment; and, if applicable, why Respondents believe the event constitutes a Force Majeure. The memorandum shall be accompanied by all available pertinent documentation including any relevant third party correspondence. Respondents' obligation to produce documents under this paragraph shall exclude those portions of documents which are privileged from discovery as attorney-client privileged communications or as attorney work product, as defined in Federal Rule of Civil

Procedure 26. For any document or portion thereof sought to be withheld hereunder, Respondents shall identify, in writing, the subject, author, addressee, and date, as well as any other information necessary to determine the basis of Respondents' claim of privilege or of attorney work product. Respondents shall exercise best efforts to avoid or minimize any delay and any effects of any delay. Failure to comply with the above requirements shall preclude Respondents from asserting any claim of Force Majeure.

76. If EPA agrees that the delay or anticipated delay is attributable to Force Majeure, the time for performance of the obligations under this Order that are directly affected by the Force Majeure event shall be extended by EPA for a period equal to the actual duration of the delay attributed to the Force Majeure event. Extensions of time attributable to Force Majeure events shall not constitute violation of the Order. An extension of the time for performance of obligations directly affected by the Force Majeure event shall not extend the time for performance of any other obligations.

77. If EPA does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, or does not agree with Respondents as to the appropriate length of any extension due to Force Majeure, Respondents may invoke the dispute resolution procedures set forth in Section XVIII of this Order.

78. In dispute resolution, Respondents shall have the

burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay was or will be warranted under the circumstances, that Respondents did exercise or are exercising due diligence by using their best efforts to avoid and mitigate the effects of the delay, and that Respondents have complied with all of the requirements of Paragraph 75 above.

XXI. REIMBURSEMENT OF PAST COSTS

79. Within fifteen (15) days of the effective date of this Order, Respondents shall remit a certified or cashiers check to EPA in the amount of $76,884.00, for all Costs, plus interest, incurred by the United States in its investigation of the Site up to and including September, 1990.

80. Checks should be made payable to the Hazardous Substances Trust Fund and should include the name of the Site and the title of this Order. Checks should be forwarded to:

U.S. Environmental Protection Agency
Region 10 Superfund Accounting
P.O. Box 371003M
Pittsburgh, PA 15251

81. A copy of the check and any transmittal correspondence should be sent simultaneously to the EPA Project Manager.

XXII. REIMBURSEMENT OF RESPONSE AND OVERSIGHT COSTS

82. Following the issuance of this Order, EPA shall

submit an accounting, including the documentation set forth below, of all Costs, including response and oversight costs incurred by the United States with respect to the Site, to Respondents on a periodic basis. Costs may include but are not limited to, costs incurred by the United States in overseeing Respondents' implementation of the requirements of this Order, and activities performed by the United States as part of the RI/FS and community relations, including any costs incurred to obtain access. Costs shall include all direct and indirect costs, including, but not limited to, time and travel costs of EPA personnel and associated indirect costs, contractor costs, cooperative agreement costs, compliance monitoring, including the collection and analysis of split samples, inspection of RI/FS activities, Site visits, discussions regarding disputes that may arise regarding this Order, review and approval or disapproval of submissions, and costs of doing or redoing any of Respondents' tasks. Summaries, including EPA's certified Agency Financial Management System summary data (SPUR Reports), or such other summary as certified by EPA, may serve as a basis for payment demands by EPA. However, Respondents may review the following underlying EPA oversight cost documentation subject to redaction as required by law or contract: EPA personnel timesheets, travel authorizations, and vouchers; EPA contractor monthly invoices; and all applicable contract laboratory program ("CLP") invoices.

83. Respondents shall, within thirty (30) days of receipt of each accounting that is accompanied by a request for

payment, remit a certified or cashier's check for the amount of Costs requested by EPA. Interest shall accrue from the later of: the date of the expenditure or the date payment of a specified amount is demanded in writing unless payment is received within thirty (30) days of receipt of the accounting. The rate shall be the rate of interest on investments for the Hazardous Substances Superfund in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

84. Checks should be made payable to the Hazardous Substances Trust Fund and should include the name of the Site and the title of this Order. Checks should be forwarded to the address identified in Paragraph 80.

85. Copies of the transmittal letter and check should be sent simultaneously to the EPA Project Coordinator.

86. Disputes concerning costs shall be limited to accounting errors and the inclusion of costs outside the scope of this Order, or which are other than "not inconsistent with the NCP", as set forth in Section 107(a)(1)-(4)(A) of CERCLA, 42 U.S.C. § 9607(a)(1)-(4)(A). Respondents shall identify any contested costs and the basis of their objection in writing. All undisputed costs shall be remitted by Respondents in accordance with the schedule set forth above. Disputed costs shall be paid, if required, ten (10) days after resolution of the dispute. Respondents shall have the burden of establishing an EPA accounting error or the inclusion of any cost outside the scope of this Order or inconsistent with the NCP. Interest as set forth in Paragraph 83 may accrue during any cost dispute.

XXIII. RESERVATIONS OF RIGHTS AND REIMBURSEMENT OF OTHER COSTS

87. EPA reserves the right to bring an action against Respondents under Section 107 of CERCLA, 42 U.S.C. § 9607, for recovery of all response costs which are not reimbursed by Respondents, including all past costs, all oversight costs and any future costs, incurred by the United States in connection with the implementation of this Order and/or any response activities at the Site. Respondents reserve the right to defend against any such claims or actions, and to assert any counterclaims or third party claims it may have against any person or entity under any applicable law.

88. EPA reserves the right to bring an action against Respondents, and/or any other responsible party, to enforce any provision or requirement of this Order or any requirement developed pursuant to this Order, including all cost reimbursement requirements, the collection of stipulated penalties pursuant to Section XIX of this Order, and the imposition of statutory penalties pursuant to Section 109 of CERCLA, 42 U.S.C. § 9609. Respondents reserve the right to defend against any such claims or actions, and to assert any counterclaims or third party claims it may have against any person or entity under any applicable law.

89. Except as expressly provided in this Order, each party reserves all claims, rights, and defenses it may have. Nothing in this Order shall affect EPA's removal, response, enforcement or other statutory and/or regulatory authority

including its right to seek injunctive relief, perform response activities, recover stipulated and/or statutory penalties, and/or punitive damages.

90. Respondents are not released from liability for any releases of hazardous substances, pollutants or contaminants which are not remediated pursuant to this Order. Respondents are not released from any liability for any unauthorized activities or response actions taken beyond the scope of this Order, including but not limited to any unauthorized emergency action or removal activity, any remedial design/remedial action, or any activities pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

XXIV. OTHER CLAIMS

91. Respondents shall not seek any reimbursement under Section 106(b) of CERCLA, 42 U.S.C. §9606(b), and shall not present any claims pursuant to Section 111 or 112 of CERCLA, 42 U.S.C. §§ 9611 or 9612, for any costs incurred in the implementation of this Order. This Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

92. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership, subsidiary or corporation not a signatory to this Order for any liability it may have arising out of or relating in any way to

the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants at, from, or taken to the Site.

93. Respondents shall not seek to recover any costs or attorneys fees from EPA or the United States arising in any manner out of the implementation of this Order.

XXV. FINANCIAL ASSURANCE, INSURANCE, AND INDEMNIFICATION

94. Respondents shall establish and maintain a financial instrument or trust account or other financial mechanism acceptable to EPA, which shall be funded sufficiently to perform the work and all other obligations of this Order, including a margin for cost overruns. Within sixty (60) days after the effective date of this Order, Respondents shall fund a financial instrument or trust account in the total sum of one and one-half (1.5) million dollars for the period beginning with the effective date of the Order and for one (1) year thereafter. Respondents shall fund the financial instrument or trust account in an amount deemed sufficient by EPA to perform the work and all other activities required under this Order projected for the succeeding year. Within sixty (60) days of the effective date of this Order and annually thereafter, Respondents shall provide EPA with appropriate documentation demonstrating compliance with this paragraph.

95. If at any time the net worth of the financial instrument or trust account is insufficient to perform the work

and other obligations of this Order for the upcoming year, Respondents shall provide written notice to EPA within thirty (30) days after the net worth of the financial instrument or trust account becomes insufficient. The written notice shall describe why the financial instrument or trust account is insufficient, and what actions have been or will be taken to fund the financial instrument or trust account in accordance with the requirements of this Order.

96. A. Prior to the commencement of any work under this Order, Respondents shall secure, and shall maintain in force for the duration of this Order, Comprehensive General Liability ("CGL") and automobile insurance, with limits of five (5) million dollars, combined single limit, naming the United States as a co-insured. The CGL insurance shall include Contractual Liability Insurance in the amount of $500,000 per occurrence, and Umbrella Liability Insurance in the amount of two (2) million per occurrence.

B. For the duration of this Order, Respondents shall satisfy, or shall ensure that Respondents' contractors and subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and workmen's compensation insurance for all persons performing work on behalf of Respondents, pursuant to this Order.

C. If Respondents demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or

insurance covering the same risks but in a lesser amount, with respect to such contractor or subcontractor, Respondents need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

D. Prior to commencement of any work under this Order, and annually thereafter on the anniversary of the effective date of this Order, Respondents shall provide certificates of such insurance or a copy of each policy to EPA. Respondents shall provide EPA with twenty (20) day written notice prior to cancellation or material change regarding such insurance policies.

97. Respondents shall indemnify and hold the United States, its agencies, departments, agents, and employees harmless from any and all claims or causes of action arising from or on account of acts or omissions of Respondents, their employees, agents, servants, contractors, subcontractors, consultants, laboratories, receivers, trustees, successors, or assigns, or any other persons or entities acting on Respondents' behalf, in carrying out any activities pursuant to this Order. The United States or any agency or authorized representative thereof shall not be held as a party to any contract entered into by Respondents in carrying out any activities pursuant to this Order.

XXVI. EFFECTIVE DATE AND SUBSEQUENT AMENDMENT

98. The effective date of this Order shall be the date it is signed by EPA, following signatures by both Respondents.

99. Any time period scheduled to begin on the occurrence of an act or event shall begin on the day after the act or event. All time periods and schedules are in calendar days, unless otherwise specified. If the final day of any time period falls on a Saturday, Sunday, or legal holiday, the time period shall be extended to the next working day. Legal holidays are those identified in Rule 6(a) of the Federal Rules of Civil Procedure.

100. In addition to the procedures set forth elsewhere in this Order, this Order may be amended by agreement between EPA and Respondents. Amendments shall be in writing and shall be effective when signed by EPA, following signatures by both Respondents. EPA Project Coordinators do not have the authority to sign any amendment to this Order.

101. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, or any other writing submitted by Respondents will be construed as relieving Respondents of their obligation to obtain such formal approval as may be required by this Order. Any deliverables, plans, technical memoranda, reports (other than progress reports) specifications, schedules and attachments required by this Order or developed pursuant to this Order, are, upon approval by EPA, incorporated in, and made an enforceable part of, this Order by this reference.

XXVII. TERMINATION AND SATISFACTION

102. Except as set forth in this paragraph, this Order shall terminate when Respondents demonstrate in writing and certify to the satisfaction of EPA that all activities required by this Order, including any additional work, payment of all costs, and any stipulated penalties demanded by EPA, have been performed, and EPA has approved the certification set forth in Paragraph 103 below. Following the submittal to EPA of (1) all deliverables as may be required under Paragraph 32; and (2) the certification required by Paragraph 103, Respondents may request EPA, in writing, to make a determination that the requirements of the Order have been satisfied. Respondents' obligation to comply with Sections XVII (Record Preservation), XXII (Reimbursement of Response and Oversight Costs), and XXIII (Reservations of Rights and Reimbursement of Other Costs), of this Order shall remain in full force and effect without time or other limitation.

103. The following certification shall be signed by a responsible official on behalf of Respondents:

> "In accordance with 28 U.S.C. § 1746, I certify under penalty of perjury that all reports, documents, and other materials delivered to EPA as required by this Order were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information is, to the best of my knowledge and belief, true, accurate, and complete. Dated this ____ day of _____, 199_."

For purposes of this Order, a responsible official is a corporate

official in charge of a principal business function.

IT IS SO ORDERED, this 30th day of May, 1991.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By: Philip G. Millam

PHILIP G. MILLAM, Chief
Superfund Branch
Hazardous Waste Division
EPA Region 10

Respondents hereby consent to the issuance of this ORDER, and agree to abide by each and every provision herein, and to perform each and every task or requirement herein.

BY: J T Bernasek DATE: 5-23-91

J. T. BERNASEK
Plant Manager
FMC Corporation

BY: Dean Travis Jr. DATE: 5-23-91

DEAN TRAVIS, JR.
Senior Vice President
J.R. Simplot Company

STATEMENT OF WORK FOR EASTERN MICHAUD FLATS REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

INTRODUCTION

The purpose of this Remedial Investigation/Feasibility Study ("RI/FS") is to investigate the nature and extent of contamination at the Eastern Michaud Flats Site ("Site"), the potential risk to human health and the environment, and develop and evaluate potential remedial alternatives. The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies.

Respondents will conduct this RI/FS and will produce draft RI and FS reports that are in accordance with this statement of work ("SOW"), the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988), and any other guidances that EPA uses in conducting an RI/FS (a list of the primary guidances is attached), as well as any additional requirements in the Order. The RI/FS Guidance describes the report format and the required report content. The Respondents will furnish all necessary personnel, materials, and services needed, or incidental to, performing the RI/FS, except as otherwise specified in the Order.

At the completion of the RI/FS, EPA will be responsible for the selection of a Site remedy and will document this selection in a Record of Decision ("ROD"). The remedial action alternative selected by EPA will meet the cleanup standards specified in Section 121 of CERCLA, 42 U.S.C. § 9621; i.e., the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS report, as adopted by EPA, and the administrative record, will form the basis for the selection of the remedy for the Site, and will provide the information necessary to support the development of the ROD.

As specified in Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), as amended, EPA will provide oversight of Respondents' activities throughout the RI/FS. Respondents will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

TASK 1 - SCOPING (RI/FS Guidance, Chapter 2).

Scoping includes the initial planning process for the RI/FS and is initiated by EPA prior to the development of the RI/FS workplan. During the initial phases, Site-specific objectives of the RI/FS, and a general management approach for the Site are determined by EPA. Later stages involve representatives from other federal agencies, state agencies, and tribes or trustees which have interest in the Site. Scoping is continued, as necessary, and refined throughout the RI/FS process. Consistent with the general management approach, the specific project scope will be planned by Respondents and EPA incorporating comments from the scoping process. Respondents will document the specific project scope in a work plan. Because the work required to perform an RI/FS is not fully known at the onset, and is phased in accordance with the Site's complexity and the amount of available information, it may be necessary to modify the work plan during the RI/FS to satisfy the objectives of the study.

The objectives for the Site have been determined preliminarily, based on available information. They are to gather additional data of sufficient quantity and quality concerning contaminants in soil and groundwater to conduct a Human Health and Ecological Risk Assessment, to determine extent and transport of contaminants, and to select the most appropriate remedial action by conducting a Feasibility Study.

The strategy for the general management of the Site will include a sampling strategy which meets the above objectives based on the nature and extent of contamination at the Site. The data generated from the sampling effort will then be used to meet all of the requirements of an RI/FS which are outlined in this Statement of Work.

When scoping the specific aspects of a project, Respondents must meet with EPA to discuss all project planning decisions and special concerns associated with the Site. The following activities shall be performed by Respondents as a function of the project planning process.

a. <u>Site Background</u> (2.2)

Respondents will gather and analyze the existing Site background information to assist in planning the scope of the RI/FS.

<u>Collect and analyze existing data and document the need for additional data</u> (2.2.2; 2.2.6; 2.2.7)

Before planning RI/FS activities, all existing Site data will be thoroughly compiled and reviewed by Respondents,

including all presently available data relating to the varieties and quantities of hazardous substances at the Site, and past disposal practices. This will also include results from any previous sampling events which may have been conducted by Respondents or a third party. Respondents will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. The available information will be utilized in determining additional data needed to finish characterizing the Site, better define potential applicable or relevant and appropriate requirements (ARARs), and to develop a range of preliminarily identified remedial alternatives Data Quality Objectives ("DQO"s) which will be established subject to EPA approval. The DQOs will be used to characterize the usefulness and completeness of existing data. Decisions on the DQOs and data needs will be made by EPA.

b. Project Planning (2.2)

Once Respondents have collected and analyzed existing data, the specific project scope will be determined. Project planning activities include those tasks described below as well as identifying data needs, developing any work plan, designing a data collection program, and identifying health and safety protocols. Respondents will meet with EPA regarding the following activities and before the drafting of the scoping deliverables identified in Section c below.

Refine and document preliminary remedial action objectives and alternatives (2.2.3)

Once existing Site information has been analyzed and a conceptual understanding of the potential Site risks are reached, Respondents will review and, if necessary, refine the remedial action objectives that have been identified by EPA for each contaminated medium. The revised remedial action objectives will be documented in a technical memorandum and subject to EPA approval. Respondents will then identify a preliminary range of broadly defined potential remedial action alternatives and associated technologies. The range of potential alternatives should encompass, where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives which involve containment with little or no treatment; and a no-action alternative.

Document the need for treatability studies (2.2.4)

If remedial actions involving treatment have been identified by Respondents or EPA, treatability studies will be required unless Respondents can demonstrate to EPA's satisfaction that they are not needed. If treatability studies are

needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Site characterization activities (see Tasks 3 and 5).

Begin preliminary identification of Potential ARARs (2.2.5)

Respondents will conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific and action-specific) to assist in the refinement of remedial action objectives, and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as Site conditions, contaminants, and remedial action alternatives are better defined.

c. Scoping Deliverables (2.3)

After the project planning phase, Respondents will submit a RI/FS work plan, a sampling and analysis plan, ("SAP") and a site health and safety plan. The RI/FS work plan and SAP must be reviewed and approved by EPA prior to the initiation of any field activities.

RI/FS Work Plan (2.3.1)
A work plan documenting the decisions and evaluations completed during the scoping process will be submitted to EPA for review and approval. The work plan should be developed in conjunction with the SAP and the site health and safety plan, although each plan may be delivered under separate cover. The work plan will include: a comprehensive description of the work to be performed, including the methodologies to be utilized; a corresponding schedule for completion, and the rationale for performing all required activities.

Specifically, the work plan will present a statement of the remaining problem(s) and potential problem(s) posed by the Site, and the objectives of the RI/FS. It will include a Site background summary setting forth the Site description including its geographic location, and to the extent possible, a description of its physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of its history and a description of previous responses that have been conducted at the Site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Site. Previous studies and information on the Site already submitted to EPA may be incorporated by reference. The plan will also include: a conceptual "model" describing the

contaminant sources, and potential migration and exposure pathways and receptors; a description of the Site management strategy developed by EPA during scoping; a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. It shall also reflect coordination with treatability study requirements (see Tasks 1 and 5); and include a process for and manner of identifying Federal and state ARARs (chemical-specific, location-specific and action-specific).

The major part of the work plan is a detailed description of the tasks to be performed, information needed for each task, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this SOW; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS. Respondents will refer to Appendix B of the RI/FS Guidance for a more comprehensive description of the contents of the required work plan.

Because of the iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. Respondents will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such requirements are identified. In any event, Respondents are responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

Sampling and Analysis Plan (2.3.2)

Respondents will prepare a sampling and analysis plan ("SAP") to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols, and that the data meet DQOs. The SAP provides a mechanism for planning field activities and consists of a field sampling plan ("FSP") and a quality assurance project plan ("QAPP").

The FSP will define in detail the sampling and data-gathering methods to be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control ("QA/QC") protocols to be used to

achieve the desired DQOs. The DQOs will, at a minimum, reflect use of analytic methods for identifying contamination and remediating contamination consistent with the levels for remedial action objectives identified in National Oil and Hazardous Substances Pollution Contingency Plan ("NCP") at 40 CFR Part 300, (March 8, 1990).

The QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. Field personnel should be available for EPA QA/QC training and orientation where applicable. Respondents will demonstrate in the QAPP that each laboratory it may use is qualified to conduct the proposed work including: use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the Site by EPA. Each laboratory must have, and follow, an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods must be used. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require Respondents to submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. Respondents will provide assurances that EPA has access to laboratory personnel, equipment and records for sample collection, transportation and analysis.

Site Health and Safety Plan (2.3.3)

A health and safety plan will be prepared in conformance with the Respondents' health and safety program, and in compliance with OSHA regulations and protocols. It will include the elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. EPA does not "approve" Respondents' health and safety plan. EPA reviews it to ensure all necessary elements are included, and that it provides for the protection of human health and the environment.

TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities are responsibilities of EPA. The critical community relations planning steps performed by EPA include conducting community interviews and developing a community relations plan. Although EPA implements the community relations plan, Respondents

may assist by providing information regarding the Site's history, participating in public meetings, or by preparing fact sheets for distribution to the public. EPA shall establish a community information repository, at or near the site, to house a copy of the administrative record. The extent of Respondents' involvement in community relations activities shall be within the sole discretion of EPA.

TASK 3 - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

As part of the RI, Respondents will perform the activities described in this task, including the preparation of a Site characterization summary and a RI report. The overall objective of Site characterization is to describe areas of the Site which may still pose a threat to human health or the environment. This is accomplished by determining the Site's physiography, geology, and hydrology, defining the surface and subsurface pathways of contaminant migration, identifying any remaining sources of contamination and defining the nature, extent, and volume of these sources, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. Respondents will also investigate the extent of migration of this contamination and its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site. Contaminant fate and transport shall be determined and projected from this information.

During this phase of the RI/FS, the work plan, SAP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. After the above plans have been approved by EPA, Respondents will notify EPA at least two (2) weeks in advance of any field activities, including field lay out of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and all other field investigation activities. To satisfy the objectives of the RI/FS, Respondents may have to supplement the work specified in the initial work plan. Respondents will provide a monthly progress report and participate in meetings at major points in the RI/FS, as requested by EPA.

a. Field Investigation (3.2)

The field investigation includes the gathering of any additional data needed to finish defining Site physical characteristics, any remaining sources of contamination, and the nature and extent of contamination at the Site. These activities will be performed by Respondents in accordance with the work plan and SAP. At a minimum, this shall address the following:

Implement and document field support activities (3.2.1)

Respondents will initiate field support activities following approval of the work plan and SAP. Field support activities may include obtaining access to the Site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. Respondents will notify EPA at least two (2) weeks prior to initiating field support activities so EPA may adequately schedule oversight tasks. Respondents will also notify EPA in writing upon completion of field support activities.

Investigate and define site physical characteristics (3.2.2)

Respondents will collect data on the physical characteristics of the Site and its surrounding areas including the physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and receptor populations. In defining the Site's physical characteristics Respondents will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies. Again, previous studies and information already submitted to EPA may be incorporated by reference.

Define sources of contamination (3.2.3)

Respondents will locate each remaining source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. Respondents shall conduct sufficient sampling to define the boundaries of these remaining contaminant sources to the level established in the QA/QC plan and DQOs. Defining the remaining source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

Describe the nature and extent of contamination (3.2.4)

Respondents will gather any additional information necessary to finish describing the nature and extent of contamination as a final step during the field investigation. Respondents will utilize the information on Site physical

characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. Respondents will then implement an iterative monitoring program and any study program identified in the work plan or SAP, and by using analytical techniques sufficient to detect and quantify the concentration of contaminants, shall determine the migration of contaminants through the various media at the Site. Respondents will also gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QA/QC plan and DQOs. Information on the nature and extent of contamination will be utilized to determine the level of risk presented by the Site, and will help to determine aspects of any additional appropriate remedial action alternatives to be evaluated.

b. Data Analyses (3.4)

Evaluate site characteristics (3.4.1)

Respondents will analyze and evaluate the data generated during previous studies and during the Site investigation to describe: (1) Site physical characteristics, (2) any remaining contaminant source characteristics, (3) nature and extent of contamination, and (4) contaminant fate and transport. Results of the Site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. If modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis in the Preliminary Site Characterization Summary. This evaluation shall provide any information relevant to Site characteristics necessary for evaluation of the need for remedial action, and for the development and evaluation of remedial alternatives. Analyses of data collected for Site characterization will meet the DQOs developed in the QA/QC plan stated in the SAP (or revised during the RI).

c. Data Management Procedures (3.5)

Respondents will consistently document the quality and validity of field and laboratory data compiled during the RI. All groundwater data supplied to EPA must be in strict adherence with the Region 10 Groundwater Data Management Order, R10 7500.1,

dated August 15, 1989, a copy of which is attached to this SOW as Attachment 1.

Document field activities (3.5.1)

Information gathered during Site characterization will be consistently documented and adequately recorded by Respondents in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain sample management and tracking (3.5.2; 3.5.3)

Respondents will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in any Site characterization reports unless accompanied by, or cross-referenced to, a corresponding QA/QC report. Respondents will establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.7)

Respondents will prepare the preliminary Site characterization summary and, once the baseline risk assessment (Task 4) has been completed by EPA, the remedial investigation report.

Preliminary Site Characterization Summary (3.7.2)

After completing field sampling and analysis, Respondents will prepare a concise Site characterization summary which will review all investigative activities; describe and display Site data documenting the location and characteristics of surface and subsurface features and contamination at the Site, including the affected medium location, types, physical state, concentration and quantity of contaminants. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Site characterization summary will

provide EPA with a preliminary reference for developing the risk assessment, and evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

Remedial Investigation (RI) Report (3.7.3)

Respondents will prepare and submit a draft RI report to EPA for review and approval after completion of the baseline risk assessment by EPA (see Task 4). This report shall summarize results of field activities to characterize the Site, remaining sources of contamination, nature and extent of contamination, the fate and transport of contaminants, and results of the baseline risk assessment. Respondents will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, Respondents will prepare a final RI report which satisfactorily addresses all EPA comments.

TASK 4 - BASELINE RISK ASSESSMENT (3.4.2)

As set forth in the Order, EPA will perform a Baseline Risk Assessment which will identify and characterize the toxicity and levels of hazardous substances, contaminant fate and transport, the potential for human and/or environmental exposure, and the risk of potential impacts or threats on human health and the environment. This assessment will provide bases and justification for necessary remedial activity. Respondents shall incorporate the Baseline Risk Assessment reports generated by EPA into the RI Report.

TASK 5 - TREATABILITY STUDIES (RI/FS Manual, Chapter 5)

Unless Respondents can demonstrate to EPA satisfaction that they are not needed, treatability testing will be performed by Respondents to assist in the detailed analysis of alternatives. If applicable, testing results and operating conditions will be used in the detailed design of the selected remedial technology. Treatability testing includes the following activities:

a. Determination of Candidate Technologies and of the Need for Testing (5.2; 5.4)

Respondents will identify in a technical memorandum, subject to EPA review and approval, candidate technologies for a treatability studies program during project planning (Task 1). Candidate technologies will cover the range of technologies required for alternatives analysis (Task 6 a). The specific data requirements for the testing program will be determined and refined during Site characterization and the development and screening of remedial alternatives (Tasks 2 and 6, respectively).

Conduct literature survey and determine the need for treatability testing (5.2)

Respondents will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for the Site on the basis of available information, treatability testing will be conducted. If EPA determines treatability testing is required, and unless the Respondents can demonstrate to EPA's satisfaction that they are not needed, Respondents will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

Evaluate treatability studies (5.4)

Once a decision has been made to perform treatability studies, Respondents and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, Respondents will either submit a separate treatability testing work plan or an amendment to the original Site work plan for EPA review and approval.

b. Treatability testing and deliverables (5.5; 5.6; 5.8)

The required deliverables, in addition to the memorandum identifying candidate technologies, if treatability testing is conducted include: a work plan, a SAP, and a final treatability evaluation report. EPA may also require a treatability study health and safety plan, if appropriate.

Treatability testing work plan (5.5)

Respondents will prepare a treatability testing work plan or amendment to the original Site work plan for EPA review and approval describing the Site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, residual waste management, and DQO documentation. If pilot-scale treatability testing is to be performed, the pilot-scale

work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site, permitting requirements will be addressed.

Treatability study SAP (5.5)

If EPA determines that the original QAPP or FSP is not adequate for defining the activities to be performed during the treatability tests, a separate treatability study SAP or amendment to the original Site SAP will be prepared by Respondents for EPA review and approval. Task 1, item c., above, provides additional information on SAP requirements.

Treatability study health and safety plan (5.5)

If EPA determines that the original health and safety plan is not adequate for defining the activities to be performed during the treatability tests, a separate or amended health and safety plan will be developed by Respondents. Task 1, item c., above, provides additional information on health and safety plan requirements. EPA will review but will not "approve" the treatability study health and safety plan.

Treatability study evaluation report (5.6)

Following completion of treatability testing, Respondents will analyze and interpret the testing results in a technical report to EPA. Depending on the sequence of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 6 - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES
(RI/FS Guidance, Chapter 4)

The development and screening of remedial alternatives is performed to develop an appropriate range of options to be evaluated. This range of alternatives should include as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of hazardous substances or wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated hazardous substances or wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following

activities will be performed by Respondents as a function of the development and screening of remedial alternatives.

a. Development and Screening of Remedial Alternatives (4.2)

Concurrent with its RI Site characterization task, Respondents will begin to develop and evaluate a range of appropriate hazardous substance or waste management options which, at a minimum, ensure protection of human health and the environment.

Refine and document remedial action objectives (4.2.1)

Respondents will review, and if necessary, propose refinement to the potential remedial action objectives that are established by EPA during the scoping process. The revised remedial action objectives will be documented in a technical memorandum. These objectives will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels for each exposure route.

Develop general response actions (4.2.2)

Respondents will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

Identify areas or volumes of media (4.2.3)

Respondents will identify areas or volumes of media to which general response actions may apply, taking into account the requirements for protectiveness identified in the remedial action objectives, and the chemical and physical characteristics of the Site.

Identify, screen, and document remedial technologies (4.2.4; 4.2.5)

Respondents will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with, or immediately following the identification of technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more

representative processes for each technology type. The technology types and process options will be summarized in a technical memorandum to be submitted to EPA for review and approval. The reasons for eliminating alternatives must be specified.

Assemble and document alternatives (4.2.6)

Respondents will assemble selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives will represent a range of treatment and containment combinations that will address the Site as a whole. A summary of the assembled alternatives and their related action-specific ARARs will be included in a technical memorandum to be submitted to EPA for review and approval. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Refine alternatives

Respondents will refine the remedial alternatives to identify contaminant volume addressed by each proposed process, and the sizing of critical unit operations, as necessary. Sufficient information will be collected for an adequate comparison of alternatives. Remedial action objectives for each medium will also be refined as necessary to incorporate any new risk assessment information being generated from the remedial investigation. Action-specific ARARs will be updated as remedial alternatives are refined.

Conduct and document screening evaluation of each alternative (4.3)

If necessary, Respondents will perform a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If required, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis.

As appropriate, the screening will preserve the range of treatment and containment alternatives initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. Respondents will prepare a technical memorandum summarizing the results and reasoning employed in screening, arraying alternatives that remain

after screening, and identifying the action-specific ARARs for the remaining alternatives.

b. Alternatives Development and Screening Deliverables (4.5)

Respondents will prepare a technical memorandum summarizing the work performed and the results of each task above, including an alternatives array summary. These alternatives will be modified by Respondents if required by EPA to assure identification of a complete and appropriate range of viable alternatives for detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

TASK 7 - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES
(RI/FS Guidance, Chapter 6)

A detailed analysis will be conducted by Respondents to provide EPA with sufficient information for the selection of a Site remedy. This analysis is Respondent's final FS task.

a. Detailed analysis of alternatives (6.2)

Respondents will conduct a detailed analysis of alternatives consisting of an analysis of each option against a set of nine (9) evaluation criteria, and a comparative analysis of all options using the same evaluation criteria.

Apply nine (9) criteria and document analysis (6.2.1 - 6.2.4)

Respondents will apply nine (9) evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative, Respondents should provide: (1) a description of the alternative which outlines the hazardous substance or waste management strategy involved and identifies the key ARARs, and (2) a discussion of the individual criterion assessment.

If Respondents does not have direct input on criteria 8 (state or support agency acceptance) and 9 (community acceptance), these will be addressed by EPA.

Compare alternatives against each other and document the comparison of alternatives (6.2.5; 6.2.6)

Respondents will perform a comparative analysis between the remedial alternatives comparing each alternative against the others using the evaluation criteria. EPA will identify and select the preferred alternative. Respondents will prepare a technical memorandum summarizing the results of the comparative analysis.

b. Detailed Analysis Deliverables (6.5)

In addition to the technical memorandum summarizing the results of the comparative analysis, Respondents will submit a draft FS report to EPA for review and approval. After all EPA comments have been addressed by Respondents to EPA satisfaction, the final FS report will be bound with the final RI report.

Feasibility study report (6.5)

Respondents will prepare a draft FS report for EPA review and comment. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. Respondents will refer to the RI/FS guidance for an outline of the report format and the required report content. Respondents will prepare a final FS report which satisfactorily addresses all EPA comments.

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The NCP, as amended, 40 C.F.R. Part 300 (March 8, 1990)

"Guidance for Conducting Remedial investigations and Feasibility Studies under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER directive No. 9355.3-01.

"Guidance on Oversight of Potentially responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, (forthcoming), OSWER Directive No. 9835.3.

"A Compendium of Superfund Field operations Methods," two volumes, U.S. Epa, Office of Emergency and Remedial Response, EPA/540/p-87/001-A, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-001-R.
"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/g-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

"Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

"Users Guide to the EPA Contract Laboratory Program," U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance on Compliance with Applicable Or Relevant And Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

ENVIRONMENTAL PROTECTION AGENCY

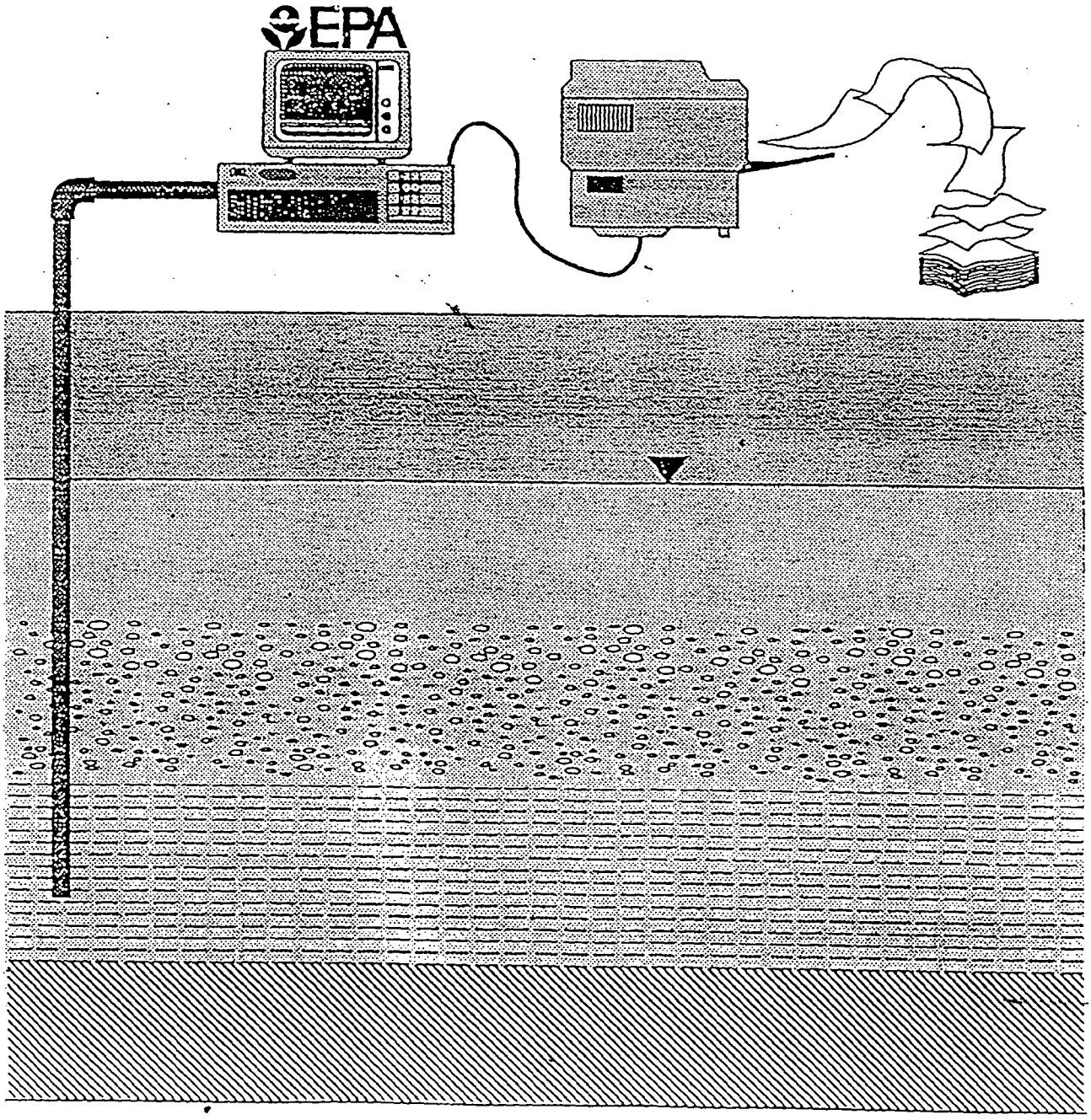
ORDER

R10 7500.1

August 15, 1989

WATER - GENERAL

REGION 10
GROUND-WATER DATA MANAGEMENT



Dist: Regional Directives

Initiated by: WD

This Order will also provide a new capability for EPA to rapidly perform regional summaries of environmental quality. The availability of a centralized ground-water data system will allow EPA to quickly summarize and present analytical data portraying the condition of ground-water resources of EPA Region 10. EPA will need this capability to effectively tabulate Environmental Indicators, a national effort which will receive increased emphasis during the next few years. These new capabilities will also enhance EPA's ability to conduct regional risk assessments.

4.0 DEFINITIONS

4.1 Documentation:

A written record furnishing information that a procedure has been performed and how it was performed.

4.2 Ground-water data:

For the purposes of this Order, ground-water data is comprised of two categories: Sampling station location and descriptive information, and sample analytical data. The specific components of each of these categories are given respectively in Sections 6.2.1.1 and 6.2.2.1 of this Order. These data elements are derived from the EPA National Order No. 2150, "Minimum Set of Data Elements for Ground Water."

4.3 Generation/collection of ground-water data:

The construction of a ground-water monitoring well; the collection of a water sample from such a monitoring well, a drinking water well, or other type of well, springs, or any other source of ground water; performance of chemical, physical, and/or biological analyses by or under the direction of EPA.

4.4 Location:

The exact location of a ground-water sampling station, usually a well, as determined by standard surveying procedures. The location may be given in Latitude and Longitude coordinates, accurate to within one-tenth of a second; or, in Universal Transverse Mercator (UTM) system coordinates (accurate to the nearest meter), or in State Plane System coordinates (accurate to the nearest foot).

4.5 Project manager:

Any EPA staff member responsible for coordinating activities on a specific site, group of sites, or investigation projects; where collection of ground-water data is conducted. This includes but is not limited to Superfund and RCRA site managers, on-scene coordinators, special study coordinators, etc.

5.4 ESD, Ambient Monitoring and Analysis Branch (AMAB), shall have responsibility in the following areas:

5.4.1 AMAB shall provide guidance and training as appropriate to EPA staff, consultants, contractors, or others, upon request, to ensure that ground-water data submitted to EPA is properly encoded in accordance with procedures detailed in Section 6.

5.4.2 AMAB shall be responsible for determining the disposition of the data received by EPA, and transferring data to the appropriate EPA data management system (e.g., STORET; Region 10 Ground-Water Site Inventory database; the Geographic Information System, or the Ground-Water Workstation).

5.4.3 AMAB shall effect the transfer of ground-water data from the Laboratory Sample Data Management System to a data system in use at the Regional Office (see 5.4.2, above), for data generated as a result of sampling activities conducted directly by EPA staff. In such cases AMAB shall be responsible for entry of sampling station descriptive information into the appropriate related database.

5.4.4 AMAB shall code and enter historical data, and data collected under ongoing agreements, in accordance with the provisions of this Order, and as time and resources allow.

5.5 ESD, Office of Quality Assurance shall consider this Order when reviewing sampling plans and, upon receipt and review of data, make recommendations for data quality and usability.

5.6 All EPA field staff collecting or generating ground-water data in the field shall be responsible for tabulating sampling station descriptive information described in Section 6. Such tabulations must be submitted to AMAB.

5.7 Hazardous Waste Division (HWD), Superfund Branch staff (Site Managers and others) shall, where appropriate, require that ground-water data management procedures described in Section 6 be implemented in all actions involving collection of ground-water data. These actions include all of the following:

- Preliminary Assessments/Site Investigations
- Remedial Investigations
- Feasibility Studies
- Remedial Design/Remedial Action
- Operation and Maintenance

The procedures shall be required for all ground-water data collection activities conducted under the following circumstances:

- Directly by EPA;
- By any contractors or consultants tasked by EPA;

6.0 DATA MANAGEMENT PROCEDURES

6.1 GENERAL PROCEDURES

A data management plan shall be prepared for all EPA Region 10 activities involving groundwater sampling and analysis of data collected in the field. The plan shall incorporate the general provisions given in subsections 6.1.1 through 6.1.5. Data encoded and stored in accordance with subsections 6.1.1 through 6.1.5 shall be transferred to EPA in consultation with ESD AMAB data management staff. The data management plan shall be subject to EPA approval. AMAB will provide review assistance to all other EPA units reviewing data management plans.

6.1.1 A unique identification code shall be assigned to all monitoring and sampling stations.

6.1.2 Location data and descriptive information shall be recorded and encoded for all monitoring and sampling stations.

6.1.3 All sample analytical results, field measurements, and observations must be identified, recorded, encoded, and stored in accordance with one of the options given in Section 6.2.

6.1.4 Analytical results and other observations shall be correlated with respective sampling station location and descriptive information, by use of common identification codes assigned to station locations.

6.1.5 Location data, descriptive information, analytical results, field measurements, and any other observations of information recorded shall be encoded and stored in accordance with Section 6.2.

6.2 DETAILS OF DATA MANAGEMENT PROCEDURES

6.2.1 Station Location and Descriptive Information

6.2.1.1 Descriptive Information Categories

All station location and descriptive information shall be tabulated, encoded, and entered into a database (or database compatible file system). The following categories of information (fields) are required for each sampling station. (These fields are those described in the EPA National Order No. 2150, "Minimum Set of Data Elements for Ground Water.")

a. Unique station identification code number: a 1 to 12 digit alphanumeric code

b. Location (see Definitions, Subsection 4.4)

d. A Lotus-compatible spreadsheet with fields across top (i.e. fields are columns)

6.2.2 Sample Analytical and Water-Level Data

6.2.2.1 Categories (Fields)

All sample analytical data and water level data shall be tabulated, encoded, and entered into a database (or database compatible file system). The following categories of information (fields) are required for each sampling event at each station. (These fields are those described in the EPA National Order No. 2150, "Minimum Set of Data Elements for Ground Water.")

a. Station location identification code

b. Date of sampling event

c. Sample identification code

d. Agency requesting sampling data (usually EPA)

e. Analytical parameters measured (compound names, and respective STORET parameter codes, or CAS numbers)

f. Concentration (or other) value of parameter measured

g. Confidence factor (field and lab quality assurance data qualifiers)

h. Measurement quantification

i. Depth to water at time of sample collection

6.2.2.2 Sample Analytical and Water Level Data Encoding and Storage Procedures

a. PC STORET/STORET compatible database or data storage cards (EPA will provide database shell);

b. Lotus spreadsheet compatible with EPA lotus/STORET conversion utilities;

c. dBase file compatible with EPA dBase/STORET conversion utilities;

d. Other formats as approved by EPA AMAB data management staff.